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Division of Public Health

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Date: 11 APR 2013  
To: NC Medical Providers  
From: Dr. Megan Davies, State Epidemiologist *MDavies, MD*  
Subject: Diagnosis and Surveillance for Tickborne Rickettsial disease

**Spotted Fever Group Rickettsiosis, Ehrlichiosis and Anaplasmosis Diseases Introduction:**

Tick-Borne rickettsial diseases (TBRD) are clinically similar and include Rocky Mountain spotted fever as well as diseases caused by other *Rickettsia*, *Ehrlichia* and *Anaplasma* species. Rocky Mountain spotted fever and other spotted fever illnesses are not distinguished by the present level of testing and, for surveillance purposes, are reported as Spotted Fever Group Rickettsiosis (SFGR). SFGR predominate in NC and comprise 82% of all TBRD from 2012. Cases of Ehrlichiosis (15%) and Anaplasmosis (3%) are caused by *Ehrlichia chaffensis* and *Anaplasma phagocytophilum* respectively.

**Confirmation of Diagnosis and Surveillance:**

Submission of serological specimens for Immunofluorescent Assay (IFA) of IgG antibody is the most accepted means to confirm a diagnosis of TBRD for surveillance purposes. Although testing is available for RMSF specifically, the test is not species specific and will cross react with other species in the genus *Rickettsia*. Testing for spotted fever rickettsia is available at no charge from the State Laboratory of Public Health. See: <http://slph.state.nc.us/virology-serology/special-serology.asp>.

The CDC notes that ELISA (EIA) tests alone are not quantitative and IgM tests lack specificity. For these reasons, if testing is performed through a commercial laboratory, we strongly encourage the use of paired acute and convalescent sera submitted for IgG IFA testing for surveillance purposes.

In North Carolina the number of reported cases of SFGR (including RMSF) has more than doubled from 250 cases in 2009 to 600 cases in 2012. However, only 5-10% of cases in any year are confirmed via paired acute and convalescent serology. The vast majority of cases are classified as probable. While this is consistent with national reporting patterns, we request your support to improve surveillance by ordering both acute and convalescent serum samples to determine how many probable cases of SFGR may be confirmed.

**Treatment:**

Regardless of the ultimate cause of infection, if TBRD is suspected, the patient should be treated promptly and appropriately with doxycycline. Laboratory confirmation of infection with TBRD organism may take weeks and therapy should not be delayed pending diagnosis. TBRD are potentially fatal and treatment guidelines can be found at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5504a1.htm>. All TBRD species will respond to therapy with doxycycline and this therapy should never be delayed while awaiting diagnostic certainty. Note that use of antibiotics other than doxycycline is associated with a higher risk of fatal outcome and doxycycline is currently subject to limited availability. Please see the following websites for information about doxycycline availability:

- <http://www.ashp.org/DrugShortages/Current/bulletin.aspx?id=977>
- <http://www.cdc.gov/std/treatment/doxycyclineShortage.htm>

If you have any questions about surveillance for tick borne rickettsial diseases please contact Jodi Reber or Carl Williams at 919-733-3419.

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